REMARKS

The final Office Action of November 20, 2007, has been received and reviewed.

Claims 1-12 and 14 are currently pending and under consideration in the above-referenced application, each standing rejected.

Reconsideration of the above-referenced application is respectfully requested.

Rejections under 35 U.S.C. § 112, First Paragraph

Claim 1 has been rejected under 35 U.S.C. § 112, first paragraph, for reciting subject matter that purportedly lacks an adequate written description in the as-filed specification. Specifically, it has been asserted that the as-filed specification does not provide support for a semiconductor device structure with a layer that comprises silicon nitride and that is "substantially free of in-film particles or surface roughness features of **more than** about 150 nm. The Office does note, however, that the as-filed specification provides support for a layer that comprises silicon nitride that is "substantially free of particles or surface roughness features **in the** about 120-150 nm size range." Final Office Action, page 2.

In an attempt to advance prosecution of the above-referenced application, it is proposed that independent claim 1 be revised to replace "more than about 150 nm" with "about 120 nm to about 150 nm." As the Office has already indicated that the as-filed specification provides support for this recitation, it is respectfully submitted that independent claim 1, as proposed to be amended, complies with the written description requirement of the first paragraph of 35 U.S.C. § 112. Accordingly, withdrawal of the 35 U.S.C. § 112, first paragraph, rejection of independent claim 1 is respectfully requested.

Rejections under 35 U.S.C. § 103(a)

Each of claims 1-12 and 14 has been rejected under 35 U.S.C. § 103(a).

There are several requirements in establishing a *prima facie* case of obviousness against the claims of a patent application. All of the limitations of the claim must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 985 (CCPA 1974); *see also* MPEP § 2143.03. Even then, a claim "is not proved obvious merely by demonstrating that each of its elements was,

independently, known in the prior art." *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1396 (2007). The Office must also establish that one of ordinary skill in the art would have had a reasonable expectation of success that the purported modification or combination of reference teachings would have been successful. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). There must also be "an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *KSR* at 1396. That reason must be found in the prior art, common knowledge, or derived from the nature of the problem itself, and not based on the Applicant's disclosure. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006). A mere conclusory statement that one of ordinary skill in the art would have been motivated to combine or modify reference teachings will not suffice. *KSR* at 1396.

Background Art

Claims 1-12 and 14 stand rejected under 35 U.S.C. § 103(a) for being drawn to subject matter that is allegedly unpatentable over the subject matter discussed in the "BACKGROUND" section of the above-referenced application.

The mere discussion of semiconductor device structures with silicon nitride layers including "non-uniformities or particles of about 120-150 nm dimension... at an incidence of about 40,000 or more per eight inch semiconductor wafer..." in the "BACKGROUND" section does not qualify that background information as the type of prior art that renders any of claims 1-12 and 14 unpatentable under any subsection of 35 U.S.C § 102 or, therefore, under 35 U.S.C. § 103(a).

In any event, even if the phrase "substantially free" were defined to include a per area average of *less than* about 40,000 non-uniformities or particles per eight inch semiconductor wafer, it is respectfully submitted that "*less than* about 40,000" does not overlap "about 40,000 *or more*" (emphasis supplied). As such, the discussion of "non-uniformities or particles of about 120-150 nm dimension in [a] silicon nitride layer... at an incidence of about 40,000 or more per eight inch semiconductor wafer..." in the "BACKGROUND" section of the above-referenced application does not amount to a teaching or suggestion of a semiconductor

device structure that includes a layer comprising silicon nitride that is "substantially free of in-film particles or surface roughness features of about 120 nm to about 150 nm," as recited in amended independent claim 1, or a semiconductor device structure that includes a layer comprising silicon nitride that is "substantially free of in-film particles or surface roughness features of at least about 120 nanometers," as recited in independent claim 8.

As the "BACKGROUND" section of the above-referenced application is not prior art under 35 U.S.C. § 102 and does not teach or suggest each and every element of either amended independent claim 1 or independent claim 8, it is respectfully submitted the "BACKGROUND" section does not support a *prima facie* case of obviousness against the subject matter recited in either of these claims. It is, therefore, respectfully submitted that, even if the subject matter discussed in the "BACKGROUND" section of the above-referenced application could be considered to be prior art against the claims of the above-referenced application, under 35 U.S.C. § 103(a), amended independent claims 1 and 8 are both drawn to subject matter that is allowable over that subject matter.

Claims 2-7 are each allowable, among other reasons, for depending directly or indirectly from independent claim 1, which is allowable.

Claim 5 is additionally allowable because the "BACKGROUND" section does not teach or suggest that the surface of a layer that comprises anti-reflective material may be substantially free of at least one of measurable particulates or surface roughness. To the contrary, Fig. 4 of the above-referenced application shows a large number of in-film particles 44 on the surface of a dielectric anti-reflective coating ("DARC") film 42. Further, paragraph **[0009]** of the above referenced application explains that the presence of about 40,000 or more non-uniformities or particles in a silicon nitride layer will probably be problematic due to the increased likelihood that they will cause structural deformities or other problems.

Each of claims 9-12 and 14 is allowable, among other reasons, for depending directly or indirectly from claim 8, which is allowable.

Claim 12 is further allowable since the "BACKGROUND" section of the above-referenced application does not include any teaching or suggestion that the surface of a layer that comprises anti-reflective material may be substantially free of at least one of

measurable particulates or surface roughness. To the contrary, Fig. 4 of the above-referenced application shows a large number of in-film particles 44 on the surface of a dielectric anti-reflective coating ("DARC") film 42. Further, paragraph **[0009]** of the above referenced application explains that the presence of about 40,000 or more non-uniformities or particles in a silicon nitride layer will probably be problematic due to the increased likelihood that they will cause structural deformities or other problems.

Background Art in View of Ogawa

Claims 1-12 and 14 are also rejected under 35 U.S.C. § 103(a) for reciting subject matter that is allegedly unpatentable over the art discussed in the "BACKGROUND" section of the above-referenced application, in view of Ogawa, "Performance of a Vertical LPCVD Apparatus," J. Electrochem. Soc., 136(4) 1103-08 (1989) (hereinafter "Ogawa").

While Ogawa teaches processes by which dust particle contamination may be reduced, the disclosure of Ogawa is limited to quantification of dust particles having diameters of "larger than 0.2μm," or larger than 200 nm. Ogawa, Abstract. Ogawa includes no teaching or suggestion that a semiconductor device structure may include a layer that comprises silicon nitride and that is substantially free of in-film particles or surface roughness features of at least 120 nm (amended independent claim 8) or of more than 150 nm (amended independent claim 1).

Therefore, the teachings of Ogawa do not remedy the above-identified deficiencies with respect to the subject matter taught in or suggested by the "BACKGROUND" section of the above-referenced application. Thus, the subject matter discussed in the "BACKGROUND" section of the above-referenced application and the teachings of Ogawa do not support a *prima facie* case of obviousness against either amended independent claim 1 or amended independent claim 8.

Accordingly, under 35 U.S.C. § 103(a), amended independent claims 1 and 8 are both drawn to subject matter that is allowable over the art discussed in the "BACKGROUND" section of the above-referenced application (assuming, only for the sake of argument, that such art could be considered to be prior art) and the teachings of Ogawa.

Claims 2-7 are each allowable, among other reasons, for depending directly or indirectly from independent claim 1, which is allowable.

Claim 5 is additionally allowable because neither the "BACKGROUND" section nor Ogawa teaches or suggests that the surface of a layer that comprises anti-reflective material may be substantially free of at least one of measurable particulates or surface roughness. To the contrary, Fig. 4 of the above-referenced application shows a large number of in-film particles 44 on the surface of a dielectric anti-reflective coating ("DARC") film 42. Further, paragraph **[0009]** of the above referenced application explains that the presence of about 40,000 or more non-uniformities or particles in a silicon nitride layer will probably be problematic due to the increased likelihood that they will cause structural deformities or other problems.

Each of claims 9-12 and 14 is allowable, among other reasons, for depending directly or indirectly from claim 8, which is allowable.

Claim 12 is further allowable since the "BACKGROUND" section of the above-referenced application and Ogawa both lack any teaching or suggestion that the surface of a layer that comprises anti-reflective material may be substantially free of at least one of measurable particulates or surface roughness. To the contrary, Fig. 4 of the above-referenced application shows a large number of in-film particles 44 on the surface of a dielectric anti-reflective coating ("DARC") film 42. Further, paragraph **[0009]** of the above referenced application explains that the presence of about 40,000 or more non-uniformities or particles in a silicon nitride layer will probably be problematic due to the increased likelihood that they will cause structural deformities or other problems.

Withdrawal of the 35 U.S.C. § 103(a) rejections of claims 1-12 and 14 is respectfully requested, as is the allowance of each of these claims.

Entry of Amendments

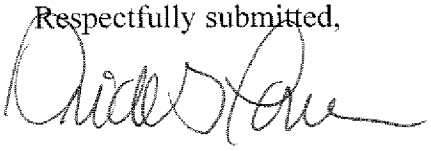
Entry of the proposed amendment to independent claim 1 is respectfully solicited. It is respectfully submitted that entry of the proposed revision to independent claim 1 would eliminate a remaining issue without introducing new matter or necessitating an additional search.

In the event that the proposed amendment to independent claim 1 is not entered, its entry is respectfully requested in the event that a Notice of Appeal is filed in the above-referenced application.

CONCLUSION

It is respectfully submitted that each of claims 1-12 and 14 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,



Brick G. Power
Registration No. 38,581
Attorney for Applicant
TRASKBRITT
P.O. Box 2550
Salt Lake City, Utah 84110-2550
Telephone: 801-532-1922

Date: January 21, 2008

BGP/dlm:ec
Document in ProLaw